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SUMMARY
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SUMMARY

Agenda Item: D.3.2

Senegal

INSULATION PROBLEMS ON HIGH-TENSION POWER LINES ALONG THE SEA-SHORE UNDER THE CLIMATIC CONDITIONS OF WESTERN SENEGAL

By A. BERNOS,
Mining Engineer,
Manager of the Senegal Phosphate Company,
Tafba

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INSULATION PROBLEMS ON HIGH-TENSION POWER LINES ALONG THE SEA-SHORE UNDER THE CLIMATIC CONDITIONS OF WESTERN SENEGAL

D.3.2.

By
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SUMMARY

The Senegal Phosphate Company's plants are supplied with electric power by a triple-conductor 90 kW overhead line about 100 km. in length.

2. After leaving Dakar, the line runs for about 40 km. close to the sea. This section was, therefore, fitted with type CTBM 247 M porcelain insulators, while the rest of the line has type CTV 254 glass insulators.

3. When the line was put under load in December 1959, there were frequent failures, causing serious inconvenience in operating the plant, which runs continuously.

4. Observations up to the present have shown that:

(a) Failures were confined to the section running close to the sea.

(b) Failures were due to lowered insulating capacity caused by atmospheric moisture on the insulators.

(c) Such failures occurred only during the dry season, from January to the end of June.

(d) They occurred at night and mainly between 1 and 7 a.m. when atmospheric conditions favoured the formation of dew.

5. Laboratory tests confirmed a serious reduction in insulating power in dirty porcelain insulators when the air was damp.

6. No satisfactory answer to the problem having been found, the Taiba company made the following tests on the line:

(a) extra insulation on some of the chains, which were observed frequently

(b) cleaning insulators by hand, with power off.

7. Only the second method turned out to be satisfactory, but it had serious drawbacks - high cost of cleaning and long breaks in supply.

8. The extra insulation gave no positive results. It seemed however, that the CTU 254 glass insulators behaved better on the section near the sea than did the CTBM 247 M porcelain type.

9. In view of these not very encouraging results, the Company proposes to undertake further tests.

(a) fitting special insulators recently put on the market by makers, but not yet thoroughly tested in practice.

(b) coating insulators with silicone grease.

(c) cleaning with power on, by blowing on special powder with compressed air. Washing under power has been abandoned for the time, because of the difficulty of providing and transporting water of suitable quality.

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